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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/851,968	05/10/2001	Junichi Sasaki	OSP-10578	4115
7590	04/30/2004		EXAMINER	
McGinn & Gibb, PLLC 8321 Old Courthouse Road, Suite 200 Vienna, VA 22182-3817			HYEON, HAE M	
			ART UNIT	PAPER NUMBER
			2839	

DATE MAILED: 04/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/851,968	SASAKI ET AL.	
	Examiner	Art Unit	
	Hae M Hyeon	2839	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 15 January 2004.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-4, 6, 7 and 13 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-4, 6, 7 and 13 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 26 February 2004 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION*****Allowable Subject Matter***

1. The indicated allowability of claims 1-4, 6, 7 and 13 are withdrawn in view of the newly discovered reference(s) to Henson et al (5,325,455). Rejections based on the newly cited reference(s) follow.

***Claim Objections***

2. Claim 13 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Except for different wording, claims 2 and 13 recite an optical element being connected to the optical waveguide. Thus, claim 2 and 13 are duplicated claims covering the same thing.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

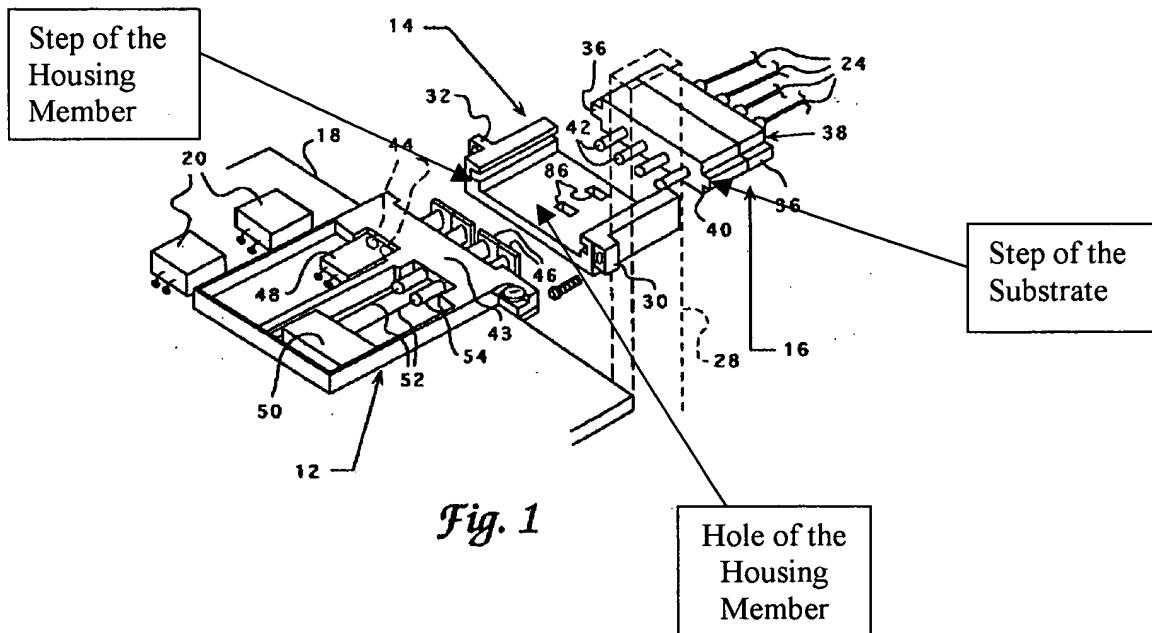
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 6 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Henson et al (5,325,455).

Henson discloses an optical module comprising an optical waveguide substrate 16 and an optical element housing member 14. The housing member 14 includes a hole for

accommodating and fixing one or the other end of the substrate 16 and optically connecting the substrate 16 to an optical element, and steps for positioning the substrate formed along both side edges of an inner surface of the hole. The substrate 16 includes steps 36 for positioning the substrate 16 in the housing member 14 formed along both side edges of the substrate 16.

Although, the hole of the housing member is not a closed side hole, but the hole of Henson can be broadly interpreted as a hole with a partially open side. Regarding to the steps of the housing member 14 and the substrate, a groove and a rib can be broadly considered as form of at least one step because the groove and the rib have a height and a horizontal surface.



#### *Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kropf (6,227,722 B1) in view of Bruce et al (6,312,581 B1) and Henson et al (5,325,455).

Kropf discloses an optical module comprising an optical waveguide having multiple cores 4 buried in a clad 30, a rectangular-shaped optical waveguide substrate 60 including high precision steps 64 formed along a longitudinal direction of the substrate 60 on both sides of an upper surface 61 of the substrate 60, and an optical fiber connecting end member 70 including guide pin insertion holes 23 and 24 and a through hole (open space pointed by the reference number 25 in Figure 1) for accommodating and fixing an end surface of the substrate 60. The optical waveguide is mounted on the substrate 60. On an inside of the through hole, steps 68 are formed so as to fit the high precision steps 64 when the substrate 60 is inserted in the through hole. However Kropf does not disclose the substrate 60 to be silicon optical waveguide substrate.

Bruce teaches that the silicon substrate is already known type of optical waveguide substrate in optical fiber communication system.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the substrate taught by Kropf such that it would be formed from a silicon substrate as taught by Bruce because the silicon substrate is already known and used substrate in optical fiber communication system. Thus, the use of the silicon substrate only deals with the use of a preferred material. It has been held to be within the general skill of a

worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding to the steps formed along both side edges of the waveguide substrate or the housing member, it only deals with rearrangement of parts. Whether the steps are formed on a top surface or along the side edges of the substrate or the housing member, the steps will properly align the substrate with the housing. It has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70. Furthermore, Henson discloses an optical module comprising an optical waveguide substrate 16 having steps 36 formed along both side edges of an upper surface of the substrate 16 and extending in a longitudinal direction of the substrate 16 and an optical element housing member 14 having steps formed along both side edges of an inner surface of the hole. The steps 36 of the substrate 16 and the steps of the housing allow the substrate 16 to be properly mounted within the housing 14.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the steps on the substrate taught by Kropp such it would have the steps formed along both side edges of the substrate as taught by Henson because whether the steps are on a top surface or along the side edges, the substrate will be aligned properly within the housing.

7. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kropp, Bruce et al., and Henson et al. as applied to claims 1 and 2 above, and further in view of Kawaguchi et al (6,361,222 B1).

Claims 3 and 4 recites that the optical waveguide includes an inclined groove relative to the propagation direction of the light and a light reflecting device provided on the inclined groove.

While Kropp as modified by Bruce and Henson does not disclose an inclined groove and a light reflecting device, Kawaguchi discloses an optical module having an optical waveguide 12 with an inclined groove 23 and a light reflecting device 15 provided on the inclined groove 23. The light reflecting device 15 reflects a signal light beam having a specific wavelength and guides it to a reception photodiode 14b.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the optical module taught by Kropp such that it would have an inclined groove and a light reflecting device on an optical waveguide as taught by Kawaguchi because the inclined groove and the light reflecting device can reflect a specific wavelength in a signal light beam to a specific device.

#### ***Response to Arguments***

8. Applicant's arguments with respect to claims 1-4, 6, 7 and 13 have been considered but are moot in view of the new ground(s) of rejection.

The applicant argues that the reference by Kropp does not disclose a waveguide substrate having high precision steps formed in a longitudinal direction along both side edges on an upper surface of the waveguide substrate. Also the applicant argues that the Kropp does not disclose steps. Instead Kropp discloses grooves and ribs.

In regarding to the steps 64 of Kropp are not formed along both side edges of the waveguide substrate, the examiner agrees with the applicant. However, the examiner has discovered a new reference US Patent No. 5,325,455 by Henson et al, which teaches forming steps along both side edges of a substrate for the purpose of alignment (see the paragraph 5 above).

In regarding to the grooves 64 of Kropp being not a step, the examiner disagrees with the applicant because a groove and a rib can be broadly considered as form of at least one step since the groove and the rib have a height and a horizontal surface (see the paragraph 3 above).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hae M Hyeon whose AU is 2839 and whose telephone number is 571-272-2093. The examiner can normally be reached on Mon.-Fri. (8:30-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn D Feild can be reached on 571-272-2092. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the telephone number 571-272-2800 ext 39.

**Any response to this action may be mailed to:**

**Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450**

For additional information regarding this new address, which was effective May 1, 2003, see *Correspondence with the United States Patent and Trademark Office*, 68 Fed. Reg. 14332 (March 25, 2003).

Hae M Hyeon  
Examiner  
Art Unit 2839

hmh hmh

*Hae Moon Hyeon*